

Notice of Allowability

Application No.

10/035,972

Examiner

Kirsten C Jolley

Applicant(s)

YOGEV ET AL.

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendments filed 3/22/04 and interview of 5/26/04.
2. ☒ The allowed claim(s) is/are 1-3,5-21 and 23-45.
3. ☒ The drawings filed on 09 November 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

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EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Sanjeet Dutta on May 26, 2004.

The application has been amended as follows:

In claim 5, line 1, "4" has been deleted.

In claim 20, line 1, "15" has been deleted.

In claim 42, line 1, "at" has been changed to --a--.

In claims 4, 22, and 46-55, the status identifier has been changed from "Currently Canceled" to --Canceled--.

Claim 1 (Currently Amended):

A method for removing particles from a surface, comprising:

heating a fluid to form a vapor;

applying the ~~fluid~~ vapor to the surface so as to condense the vapor on the particles and
coat the particles on the surface with ~~the fluid~~ a liquid; and

applying a suction force after applying the ~~fluid~~ vapor so as to remove from the surface a majority of the particles that have a dimension of less than approximately one micron.

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Claim 19 (Currently Amended):

A method for removing particles from a surface, comprising:
heating a fluid to form a vapor;
applying the fluid vapor to the surface on which the particles are distributed so as to
condense the vapor on the particles and coat the particles with the fluid a liquid; and
applying a suction force in a vicinity of the surface after applying the fluid vapor so as to
generate a horizontal flow velocity of the fluid of at least 100 m/s, thereby removing at least
some of the particles.

Claim 37 (Currently Amended):

A method for removing particles from a surface, comprising:
heating a fluid to form a vapor;
applying the fluid vapor to the surface so as to condense the vapor on the particles and
coat the particles on the surface with the fluid a liquid; and
applying a suction force after applying the fluid vapor so as to generate a horizontal flow
velocity of the fluid of at least 100 m/s, thereby removing at least some of the particles that have
a dimension of less than approximately one micron.

Claim 43 (Currently Amended):

A method of removing a particle from a surface, comprising:
heating a fluid to form a vapor;

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applying ~~a fluid~~ the vapor to the surface so as to condense the vapor on the particle and
coat the particle with a liquid;

applying a laser beam to the surface such that absorption of the beam at the surface
releases the coated particle from the surface substantially without causing the particle to explode;
and

removing the released particle and the ~~fluid~~ liquid from the surface by means of a suction
force.

2. The following is an examiner's statement of reasons for allowance:

The prior art does not teach or fairly suggest a method of: heating a fluid to form a
vapor; applying the vapor to a substrate surface having particles thereon, whereby the vapor
condenses on the particles and coats them with liquid; and applying a suction force to remove the
condensed liquid and particles from the substrate surface; and further wherein either a horizontal
flow velocity generated by the suction is at least 100 m/s, or the majority of the particles have a
dimension of less than about one micron, or a laser beam is used in combination with the
condensed vapor to remove the particles from the surface.

The instant claims are allowable over the prior art of de Larios et al. because, while de
Larios et al. discloses applying a liquid cleaning fluid or gaseous drying fluid to a surface having
particles thereon and removing the fluid and particles via suction, de Larios et al. lacks heating a
liquid to form a vapor and applying the vapor to the surface such that the vapor condenses on the
contaminant particles to coat the particles with liquid prior to being removed by suction. .

Further, de Larios et al. teaches that when a gas drying fluid is used remove liquid from a

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surface, the gas and the liquid to be removed form a liquid/gas interface, and the liquid/gas interface is quickly removed before the interface has a chance to break down (col. 7, lines 35-46).

Additionally, it is noted that the prior art of Toshima heats/vaporizes water to form ultra-pure dry steam, applies the ultra-pure dry steam to a substrate surface having contaminant particles thereon, and removes the steam along with the particles by suction. However Toshima teaches in col. 4, lines 24-34, that the dry vapor remains dry and does not condense back into liquid.

Because claims 4, 22, and 46-55 have an improper status identifier of "Currently Canceled" in the amendment of March 22, 2004, the status identifiers are changed to the proper identifier of "Canceled."


3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten C Jolley whose telephone number is 571-272-1421. The examiner can normally be reached on Monday to Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P Beck can be reached on 571-272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Kirsten C Jolley
Patent Examiner
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kcj